PATENT APPLICATION
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SYSTEM AND METHOD FOR TRANSFERRING SCANNED IMAGING DATA TO A PERSONAL IMAGING REPOSITORY

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2   SYSTEM AND METHOD FOR TRANSFERRING SCANNED IMAGING
3   DATA TO A PERSONAL IMAGING REPOSITORY

4   The present invention generally relates to an improved system

5   and method for transferring scanned imaging data from a scanning device to a

6   personal imaging repository. More specifically, it relates to an improved

7   system and method for transferring scanned imaging data from a scanning

8   device to a personal imaging repository having an imaging data store for

9   storing the imaging data and a composition store for storing imaging

10   compositions having links to the imaging data serviced as a single unit.

11   To access imaging data scanned from a scanning device generally

12   requires that the scanning device be connected to a personal computer ("PC")

13   having specialized software that allows the user to save the scanned image,

14   which is typically stored on the user's PC hard disk. However, in order for the

15   user to use these scanned images, the user must typically interact with another

1   software program. For example, it is currently quite popular to convert the

2   images to a Portable Document Format ("PDF") file. It should be understood

3   that the term "imaging data" as read herein refers digital data capable of being

4   represented as two dimensional graphics, such as a PDF file or a Joint

5   Photographic Experts Group ("JPEG") file. Currently, because various

6   programs must be used by the user to utilize these imaging data, it is often

7   necessary for the user to know exactly where these selected images were stored

8   when they were transferred from the scanning device, and it can be difficult to

9   locate the images as a result of the user using multiple programs.

10   There are currently prior methods that attempt to make the use of

11   scanned imaging data more readily available and store the imaging data in the

12   user desired format. One of these methods allows the user to send the scanned

13   imaging data to an email address without necessarily being connected to a PC.

14   However, this method applies only to emailing the scanned image. If the user

15   wants the scanned image in another format, the user still must pick up the

16   image from email and convert the scanned image to the desired format.

17   Another known method allows the user to scan an image into a

18   web browser. In this method, the user browses to the web browser to scan on a

19   particular scanning device that is connected to this web browser. After the user

20   scans the image, the image will be displayed as a JPEG image on the browser.

21   The user, using the browser, can then copy, paste, save or print the scanned

22   image.

23   A related method scans to a web server, rather than the web

24   browser. The user can predefine the web server's location prior to scanning or

25   at the time of the scanning. In this method, the scanned imaging data is simply

26   posted on the web site of the web server, which can then be accessed by the

27   user from a browser. Again, the problem with both of these prior methods is

1   that if the user desires to utilize the scanned image further, the user may have to

2   locate the image from where it was last saved or use yet another software

3   program to convert the scanned image into another format.

4   BRIEF SUMMARY OF THE INVENTION

5   The present invention is directed to an improved system and

6   method for transferring scanned imaging data from a scanning device to a

7   personal imaging repository. More particularly, the present invention relates to

8   a system and method for transferring scanned imaging data from a scanning

9   device to a personal imaging repository having an imaging data store for

10   storing the imaging data and a composition store for storing imaging

11   compositions having links to the imaging data serviced as a single unit.

12   The present invention provides a system that includes a scanning

13   device that is capable of reading an item or indicia for scanning imaging data, a

14   personal imaging repository associated with a particular user for storing

15   imaging data that is to be accessed by requested web services, an item or

16   indicia, such as a smart card for storing user information relating to the

17   personal imaging repository, and a device firmware for storing scanned

18   imaging data from the scanning device into the personal imaging repository.

19   The personal imaging repository is an exchange infrastructure between the

20   imaging data and the available web services on the Internet.

21   The present invention further provides a method that includes the

22   steps of receiving the scanned imaging data, obtaining user information relating

23   to the personal imaging repository, connecting with the imaging data store of

24   the personal imaging repository indicated from the user information, and

25   transferring the scanned imaging data to the imaging data store.

1 DESCRIPTION OF THE DRAWINGS

2 FIGURE 1 is a preferred architectural diagram of a network

3 system in which the present invention can be implemented;

4 FIG. 2 is an architectural diagram of a second network system in

5 which the present invention can be implemented; and,

6 FIG. 3 is a flowchart illustrating the preferred functionality of the

7 scan method of the present invention.

8 GLOSSARY OF TERMS AND ACRONYMS

9 The following terms and acronyms are used throughout the

10 detailed description:

11 Client-Server. A model of interaction in a distributed system in

12 which a program at one site sends a request to a program at another site and

13 waits for a response. The requesting program is called the "client," and the

14 program which responds to the request is called the "server." In the context of

15 the World Wide Web (discussed below), the client is a "Web browser" (or

16 simply "browser") which runs on the computer of a user; the program which

17 responds to browser requests by serving Web pages, or other types of Web

18 content, is commonly referred to as a "Web server."

19 Composition store. Composition store refers to a network service

20 or a storage device for storing imaging composition(s) that can be accessed by

21 the user or other web services.

22 Content. A set of executable instructions that is served by a

23 server to a client and that is intended to be executed by the client so as to

24 provide the client with certain functionality. Web content refers to content that

25 is meant to be executed by operation of a Web browser. Web content,

26 therefore, may non-exhaustively include one or more of the following: HTML

1   code, SGML code, XML code, XSL code, CSS code, Java applet, JavaScript

2   and C-"Sharp" code.

3   Exchange infrastructure.   An exchange infrastructure is a

4   collection of services distributed throughout a network that stores imaging data

5   associated with a particular user through a user profile.

6   Hyperlink. A navigational link from one document to another,

7   from one portion (or component) of a document to another, or to a Web

8   resource, such as a Java applet. Typically, a hyperlink is displayed as a

9   highlighted word or phrase that can be selected by clicking on it using a mouse

10 to jump to the associated document or document portion or to retrieve a

11 particular resource.

12   Hypertext System. A computer-based informational system in

13 which documents (and possibly other types of data entities) are linked together

14 via hyperlinks to form a user-navigable "web."

15   Imaging composition. An imaging composition comprises links

16 to imaging data serviced as a single unit.

17   Imaging data. Imaging data refers to digital data capable of being

18 represented as two dimensional graphics, such as a Portable Document Format

19 ("PDF") file or a Joint Photographic Experts Group ("JPEG") file.

20   Imaging data store.   Imaging data store refers to a network

21 service or a storage device for storing imaging data that can be accessed by the

22 user or other network services. The imaging data store preferably accepts the

23 imaging data in multiple standard file formats, and the imaging data is

24 converted into these file formats when necessary depending on the

25 implementation.

26   Internet. A collection of interconnected or disconnected networks

27 (public and/or private) that are linked together by a set of standard protocols

1   (such as TCP/IP and HTTP) to form a global, distributed network. (While this

2   term is intended to refer to what is now commonly known as the Internet, it is

3   also intended to encompass variations which may be made in the future,

4   including changes and additions to existing standard protocols.)

5   World Wide Web ("Web"). Used herein to refer generally to both

6   (i) a distributed collection of interlinked, user-viewable hypertext documents

7   (commonly referred to as Web documents or Web pages) that are accessible via

8   the Internet, and (ii) the client and server software components which provide

9   user access to such documents using standardized Internet protocols. Currently,

10   the primary standard protocol for allowing applications to locate and acquire

11   Web documents is HTTP, and the Web pages are encoded using HTML.

12   However, the terms "Web" and "World Wide Web" are intended to encompass

13   future markup languages and transport protocols which may be used in place of

14   (or in addition to) HTML and HTTP.

15   Web Site. A computer system that serves informational content

16   over a network using the standard protocols of the World Wide Web.

17   Typically, a Web site corresponds to a particular Internet domain name, such as

18   "HP.com," and includes the content associated with a particular organization.

19   As used herein, the term is generally intended to encompass both (i) the

20   hardware/software server components that serve the informational content over

21   the network, and (ii) the "back end" hardware/software components, including

22   any non-standard or specialized components, that interact with the server

23   components to perform services for Web site users. Importantly, a Web Site

24   can have additional functionality, for example, a Web site may have the ability

25   to print documents, scan documents, etc.

26   HTML (HyperText Markup Language). A standard coding

27   convention and set of codes for attaching presentation and linking attributes to

1   informational content within documents. (HTML 2.0 is currently the primary

2   standard used for generating Web documents.) During a document authoring

3   stage, the HTML codes (referred to as "tags") are embedded within the

4   informational content of the document. When the Web document (or HTML

5   document) is subsequently transferred from a Web server to a browser, the

6   codes are interpreted by the browser and used to display the document.

7   Additionally in specifying how the Web browser is to display the document,

8   HTML tags can be used to create links to other Web documents (commonly

9   referred to as "hyperlinks"). For more information on HTML, see Ian S.

10   Graham, The HTML Source Book, John Wiley and Sons, Inc., 1995 (ISBN

11   0471-11894-4).

12   HTTP (HyperText Transport Protocol). The standard World

13   Wide Web client-server protocol used for the exchange of information (such as

14   HTML documents, and client requests for such documents) between a browser

15   and a Web server. HTTP includes a number of different types of messages

16   which can be sent from the client to the server to request different types of

17   server actions. For example, a "GET" message, which has the format GET

18   <URL>, causes the server to return the document or file located at the specified

19   URL.

20   URL (Uniform Resource Locator). A unique address which fully

21   specifies the location of a file or other resource on the Internet or a network.

22   The general format of a URL is protocol: //machine address:port/path/filename.

23   User Information. User information is identification and security

24   information used in accessing imaging composition(s) and imaging data

25   associated with a particular user profile. It is preferably accessed either

26   directly or indirectly through methods provided by an extension component

27   integrated into the web browser.

1   PDA (Personal Digital Assistant). A small hand-held computer

2 used to write notes, track appointments, email and web browser with generally

3 with far less storage capacity than a desktop computer.

4   Personal imaging repository. A personal imaging repository is a

5 conceptual term describing the exchange infrastructure used to exchange

6 imaging composition and imaging data with web services. Users are associated

7 with their imaging data through user profiles.

8   DETAILED DESCRIPTION

9   Broadly stated, the present invention is directed to an improved

10 system and method for transferring scanned imaging data from a scanning

11 device to a personal imaging repository. The system and method provide for

12 transferring scanned imaging data from a scanning device capable of reading

13 smart cards to a personal imaging repository having an imaging data store for

14 storing the imaging data and a composition store for storing imaging

15 compositions having links to the imaging data serviced as a single unit. In

16 addition, the personal imaging repository acts as an exchange infrastructure for

17 any available web services on the Internet. As a result, users can utilize images

18 from a scanning device more readily and easily.

19   The preferred network system in which the present invention can

20 be implemented is shown in FIG. 1 and indicated generally at 10. Because

21 there are numerous ways of implementing the network topology of the present

22 invention, the current preferred network system is just one way to implement

23 the present invention. As a result, it should be understood that other network

24 topologies are contemplated and are within the scope of the present invention.

25 In the preferred embodiment, an imaging client computer 12 is connected to a

26 scanning device 14 via a connection link 16. The scanning device further

1 includes a user interface 18 and a device firmware 22. The user interface 18

2 provides a way for the users to interact with the scanning device to request

3 certain functionalities, such as scanning. The device firmware 22, on other

4 hand, includes specific programming instructions that make certain

5 functionalities of the scanning device available.

6 For the imaging client 12, it preferably includes a browser 24 and

7 a personal imaging repository 26. The personal imaging repository 26 includes

8 a composition store 28 for storing imaging composition(s) 30, 30', 30" of the

9 imaging data that are serviced as a single unit and an imaging data store 32,

10 i.e., digital memory, for storing the imaging data 34, 34', 34". An imaging

11 composition 30, 30', 30" preferably comprises links to the imaging data, which

12 can be located at another web service's site. As a result, the composition store

13 34 stores only the imaging compositions 30, 30', 30". The imaging data store

14 32, 32', on the other hand, is any imaging data store located on any computer

15 that contains the imaging data 34, 34', 34". More specifically, each web service

16 can have its own imaging data store 32' available to the public.

17 For example, at some previous time, a user may print an article

18 from a web service site 36, resulting in an imaging composition 30' being

19 created and stored in the user's composition store 28. The imaging composition

20 30' contains only the link to the imaging data 34' for this article stored on the

21 web service site 36. Consequently, the imaging data 34' for the article is not in

22 the imaging data store 32 located on the imaging client 12. Rather, the imaging

23 data 34' is stored in the imaging data store 32' located on the web service site

24 36. Of course, users will have an imaging data store 32 that belongs to their

25 user identification where they can store imaging data 34, 34", which is the

26 imaging data store shown in the imaging client 12. As a result, the term

27 "personal imaging repository" 26 is meant as a conceptual term for an

9

1   exchange infrastructure between the imaging data and the available web

2   services on the Internet. Similarly, the term "web" denotes millions of distinct

3   servers that comprise the web. However, the web does not actually do

4   anything itself. Similarly, the servers serving the composition store 28 and the

5   imaging data stores 32, 32' are physical implementations of the personal

6   imaging repository as a concept.

7   In this implementation, the scanning device 14 is capable of

8   reading items, such as smart cards 38, which are inserted into the scanning

9   device by a user who wants to scan on the device. The smart card 38 is a

10   plastic card (e.g., similar to a credit card) with an embedded integrated circuit

11   for storing information. In this case, the smart card contains user information

12   relating to the personal imaging repository 26, such as a composition store

13   reference 40 and an imaging data store reference 42. While the smart card is a

14   preferred implementation for use with the scanning device 14, it should be

15   understood that other items may used. For example, an item may have a bar

16   code or other optically, magnetically or electronically encoded information that

17   could be scanned. Other items, such as a transponder could be employed. The

18   important consideration is that the item has sufficient informational capacity

19   and that information can be read by the scanning device 14 or otherwise

20   transferred to it. The user information references 40, 42 instruct the scanning

21   device where to store the scanned imaging data.

22   As a result, the personal imaging repository 26 becomes the

23   exchange infrastructure for the imaging data for the web services that are

24   available on the Internet. Users no longer have to remember in which directory

25   they placed the scanned imaging data. Furthermore, the user will no longer be

26   asked where to store the scanned imaging data, because it is automatically

1   stored in the personal imaging repository when the user scans an imaging data

2   on the scanning device.

3   In this preferred implementation, whenever an imaging data 34,

4   34' is scanned from the scanning device 14, the imaging data will be stored

5   automatically in the personal imaging repository 26 that is associated with the

6   user information provided to the scanning device. In other words, users will no

7   longer be asked to indicate a place where the imaging data should be saved to.

8   Rather, the imaging data from the scanning device will be automatically

9   transferred to the user's personal imaging repository 26. From the personal

10   imaging repository 26, other web services that are available on the Internet

11   should be configured to look into the personal imaging repository 26 to access

12   particular imaging data that have been requested for servicing.

13   It should be noted that the personal imaging repository 26 can

14   represent any type of data storage device. In fact, the data storage device 26

15   does not necessarily have to be located within the imaging client computer 12.

16   The personal imaging repository 26 can be located, for example, on another

17   storage medium, which the client machine can access through alternative

18   communication links. Although it is currently preferred to include the personal

19   imaging repository 26 with the imaging client 12, this would likely change as

20   bandwidth becomes faster and the popularity of the personal digital assistant

21   ("PDA") increases. These alternative implementations are contemplated and

22   should be considered to be within the scope of the present invention.

23   A second network system is shown in FIG. 2, and indicated

24   generally at 50.   In this embodiment, the imaging client 52 is linked to a

25   scanning device 54 over a communication link 56.   The imaging client 52

26   similarly includes a browser 58. However, unlike the previous implementation,

27   the personal imaging repository 60 is only linked to the imaging client 52. For

1   example, the personal imaging repository 60 is only a general data storage

2   device, or it may be another computer connected to the imaging client. In fact,

3   the imaging client 52 can be a PDA that links to the personal imaging

4   repository 60 by using a cradle, which is quite common for such PDAs. The

5   personal imaging repository 60 similarly includes a composition store 62 for

6   storing imaging compositions 64 and an imaging data store 66 for storing

7   imaging data 68. As shown, one of the imaging compositions 64' can be linked

8   to an imaging data 68' that is located on a web service site 70. Also, an

9   imaging composition 64" is a selected composition in the composition store,

10   meaning it will be selected for servicing.

11   Another difference from the previous embodiment is that, rather

12   than using smart cards, the user information is stored on any memory storage

13   72, which preferably includes a composition store reference 74 and an imaging

14   data store reference 76 for indicating a specific personal imaging repository

15   that the scanned imaging data should be stored in. Alternatively, numerous

16   personal imaging repository references can be stored in the memory storage 72.

17   The memory storage 72, in turn, can link to the scanning device 54, and, using

18   an user interface 78, select the specific personal imaging repository. There is

19   firmware 80 in the scanning device 54 that stores the scanned imaging data to

20   the personal imaging repository 60 indicated by user information. There are

21   numerous alternative ways to implement the network topology of the present

22   invention, and it should be understood that these other alternatives are

23   contemplated and within the scope of the present invention.

24   Turning to an important aspect of the present invention, a flow

25   chart of the preferred functionality of the scan method is shown in FIG. 3, and

26   indicated generally at 100. The scan method is initiated by the user scanning a

27   document on the scanning device (block 102). The scanning of a document

1 will cause the scanning device to receive an imaging data of the scanned

2 document (block 104). Next, the scanning device reads the store references

3 (block 106), which include the imaging store reference and the composition

4 store reference. The store references are preferably either stored on a smart

5 card or on a storage memory linked to the scanning device. In the preferred

6 implementation, it is preferred that a smart card identifying the personal

7 imaging repository (i.e., the store references) be inserted into the scanning

8 device before the user can use the scanning device to scan any document. In

9 the second implementation, the user information relating to the personal

10 imaging repository is preferably predefined before the scanning device can be

11 used for scanning.

12 After obtaining the information on the imaging data store from

13 the store references (block 106), the scanning device can now log into the

14 imaging data store service (block 108). At this point, it is determined whether

15 the connection to the imaging data store is successful (block 110), and if not, an

16 error message is sent to the user (block 112). Once it is established that a

17 connection to the imaging data store is successful (block 110), the scanning

18 device converts the imaging data into a predefined format, such as JPEG,

19 (block 114) and accordingly transfers the scanned imaging data in the

20 converted format to the imaging data store (block 116). The scanning device

21 obtains a reference to the transferred imaging data (block 118), and it will log

22 out of the imaging data store (block 120) and log into the composition store

23 (block 122). Again, it is determined whether the connection to the composition

24 store is successful (block 124). Another error message is sent to the user

25 (block 126) if the connection was unsuccessful (block 124). After a successful

26 connection to the composition store (block 124), the scanning device creates an

27 imaging composition (block 128) and adds the reference to the imaging data

1   stored in the imaging data store obtained earlier in the imaging composition

2   (block 130). This newly created imaging composition is then saved to the

3   composition store (block 132), and further set as a selected imaging

4   composition in the composition store (block 134). Because the imaging

5   composition is set as the selected composition, it will be used by web services

6   that make use of the selected composition of the personal imaging repository.

7   Finally, the scanning device logs out of the composition store (block 136),

8   which brings the scan method to an end (block 138) until the next scan is

9   initiated on the scanning device.

10   It should be noted that the order of the scan method can be varied

11   and changed depending on the implementation of the present invention. An

12   alternative method is logging into either one of the stores, and upon successful

13   connection, the scanning device then immediately logs into the other store prior

14   to performing any further steps. More specifically, for example, the scanning

15   device can first log into the imaging data store. Upon a successful connection

16   with the imaging data store, the scanning device next logs into the composition

17   store. Once it is established that the scanning device has successfully logged

18   into both the imaging data store and the composition store, only then would the

19   remaining steps be processed. This alternative method ensures that the imaging

20   data is not unnecessarily transferred to the imaging data store when an imaging

21   composition of the transferred imaging data can not be added to the

22   composition store due to a connection failure. This method is especially

23   preferred when the composition store resides on a separate location other than

24   the imaging client as shown in FIG. 2.

25   From the foregoing description, it should be understood that an

26   improved system and method for transferring scanned imaging data from a

27   scanning device to a personal imaging repository has been shown and

1 described, which has many desirable attributes and advantages. The system

2 and method provides for transferring scanned imaging data from a scanning

3 device to a personal imaging repository that acts as an exchange infrastructure

4 between the imaging data and web services that are available on the Internet.

5 Users no longer need to recall where their previous transferred images are

6 located on their hard disk. The present invention allows the user to transfer

7 scanned imaging data from a scanning device that allows for greater flexibility

8 for the user. In addition, users can manage their imaging data more easily with

9 fewer limitations.

10 While various embodiments of the present invention have been

11 shown and described, it should be understood that other modifications,

12 substitutions and alternatives are apparent to one of ordinary skill in the art.

13 Such modifications, substitutions and alternatives can be made without

14 departing from the spirit and scope of the invention, which should be

15 determined from the appended claims.

16 Various features of the invention are set forth in the appended

17 claims.